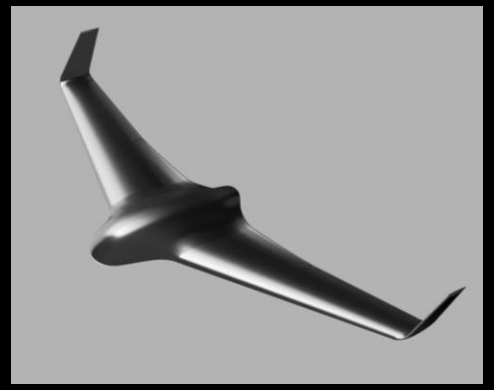
Blended-Wing Body UAV Capstone Project

The Peregrine I

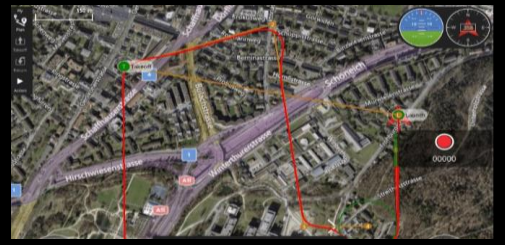
Introduction

BWB UAV is aiming to design, optimize, build, test and fly an Additively Manufactured Unmanned Aerial Vehicle (UAV) with Blended Wing Body (BWB) configuration.



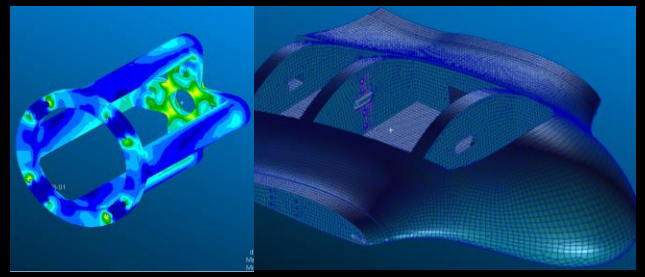
Autonomous Flight

Designing and testing autopilot controllers for autonomous flight.



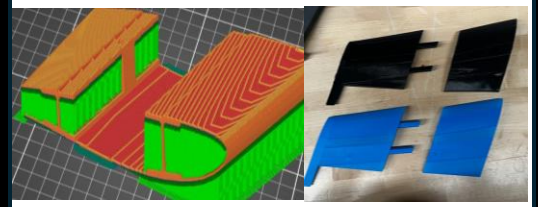
Stress & FEA

Determining structural designs through FEA.



Additive Manufacturing

Leveraging 3D printing to rapidly manufacture the UAV.

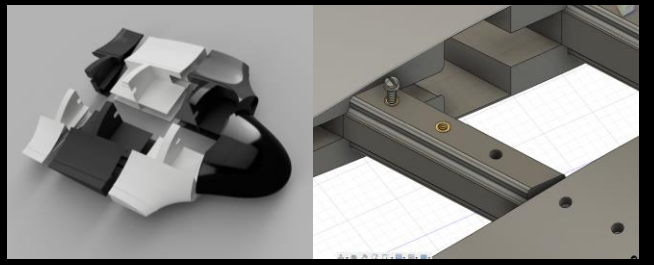


Landing Gear Design

Fixed landing gear designed for hard landing load cases.

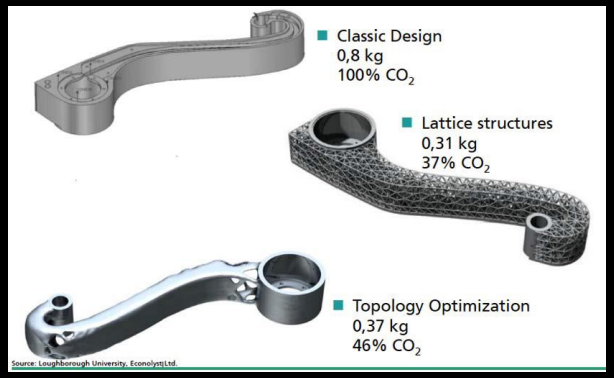
Assembly

Developing assembly strategies to join components.

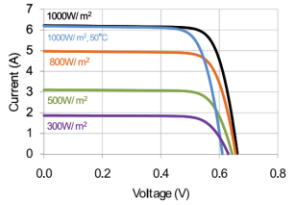


Multiscale Design Optimization

Using topology optimization and lattice structure design to reduce weight of the UAV airframe.



Systems

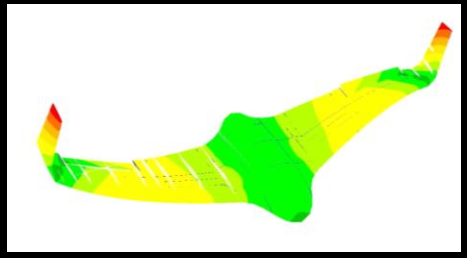


Integrating solar cells to increase flight endurance by 30-45% over base model.

Integrating a camera system for powerline forestry mapping.

Performance and Analysis

Using CFD and Modal analysis to analyze UAV characteristics.



Website